
CS5105 Parallel Computing

Assignment 4

INDIAN INSTITUTE OF TECHNOLOGY TIRUPATI

Deadline: 8th December 2020 11:59PM

Roll number: _____

Name: _____

Question:	1	2	3	4	5	6	7	Total
Marks:	2	2	5	3	5	5	3	25
Score:								

Instructions:

- Unless specified in the question, use a random number generator to initialize the required arrays/matrices.
1. (2 marks) Write a CUDA program to compute the sum of an array of elements. Input: Number of elements in the array. Output: Array sum (Print only once).
 2. (2 marks) Write a CUDA program to compute the sum of two arrays. Input: Number of elements in the array. Output: Array of sums (Print only once).
 3. (5 marks) Write a CUDA program to multiply two matrices. Input: Matrix_1 size: $m \times n$ Matrix_2 size: $n \times p$. Output: Result matrix (Print only once).
 4. (3 marks) Write a report (1-page) on CUDA libraries (<https://developer.nvidia.com/gpu-accelerated-libraries>).
 5. (5 marks) Refer to the attached paper. Implement BFS on CUDA. Either generate a random graph or download a graph from SNAP (example: <http://snap.stanford.edu/data/com-Orkut.html>)
 6. (5 marks) Refer to the attached paper. Implement SSSP on CUDA. Either generate a random graph or download a graph from SNAP (example: <http://snap.stanford.edu/data/com-Orkut.html>)
 7. (3 marks) Use Thrust library to sort a vector of elements.

Space for rough work/graffiti/doodles